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## WASTE CONTAINER STABILIZER

## RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application No. 60/428,028, filed November 21, 2002, which is hereby incorporated by reference in its entirety.

## BACKGROUND

Waste containers sized for residential or light commercial use are quite vulnerable to winds blowing them over, especially when they are empty. Once they are blown over onto their side, they begin to roll, and can become hazards to traffic, etc.

Another issue associated with the use of waste containers is the increasing transition from manual unloading to automated unloading. In many instances, the waste containers may be unloaded into a truck using robotic arms extending from the truck such that an operator does not manually empty the waste container.

Misalignment of the unloading arms or other devices may have a tendency to tip the container. If the container is tipped, the operator/driver, must exit the truck to return the waste container to its upright position, resulting in wasted time and the increased potential for workplace injuries.

Solid supports for waste containers have been fabricated from steel rods and bar stock. These are normally quite heavy, and would be cumbersome to pack and ship economically because the stabilizer weight as manufactured must be used to provide the necessary ballast to retain the stabilizer in place. They must also be painted. This poses a maintenance problem as they are exposed to the elements constantly.

## SUMMARY OF THE INVENTION

The stabilizers of the present invention are designed to stabilize a typical molded waste container against, e.g., high winds, automated unloading equipment, etc. The stabilizers include one or more hollow components designed to be filled with 5 ballast by the end user.

In one aspect, the present invention provides a waste container stabilizer apparatus including a support ring and a plurality of legs adapted to attach to the support ring. The stabilizer further includes a hollow ballast compartment in at least one leg of the plurality of legs and/or the support ring, wherein the hollow ballast 10 compartment includes an opening such that the hollow ballast compartment can be filled with ballast.

In another aspect, the present invention provides a waste container stabilizer apparatus that includes a support ring and a plurality of legs attached to the support ring. The stabilizer further includes ballast within at least one hollow ballast 15 compartment located in at least one leg of the plurality of legs and/or the support ring. The hollow ballast compartment includes an opening through which the hollow ballast compartment is filled with the ballast.

In another aspect, the present invention provides a waste container kit that includes a stabilizer assembly including a support ring and a plurality of legs adapted 20 to attach to the support ring. At least one of the legs and/or the support ring includes a hollow ballast compartment with an opening such that the hollow ballast compartment can be filled with ballast. The kit further includes a waste container sized to fit within the support ring when the stabilizer assembly and the waste container are supported on a surface.

25 In another aspect, the present invention provides a waste container stabilizing shipping kit that includes a plurality of support rings arranged in a stack on a pallet and a plurality of legs located within a volume defined by the stack of the plurality of support rings and the pallet, wherein each leg of the plurality of legs is adapted to attach to one support ring of the plurality of support rings. At least one of the legs

and/or at least one of the support rings includes a hollow ballast compartment and an opening such that the hollow ballast compartment can be filled with ballast.

In another aspect, the present invention provides a method of manufacturing a waste container stabilizer apparatus by forming a support ring and forming a plurality of legs. At least one leg of the plurality of legs and/or the support ring comprises a hollow ballast compartment and an opening such that the hollow ballast compartment can be filled with ballast.

These and other features and advantages may be described in more detail below with respect to one or more illustrative embodiments of the invention.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one illustrative embodiment of a stabilizer apparatus according to the present invention with a waste container located therein.

FIG. 2 is a cutaway view of the stabilizer of FIG. 1.

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FIG. 3 shows a quantity of stabilizers stacked and palletized for shipment.

#### DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS OF THE INVENTION

In the following detailed description of illustrative embodiments, reference is made to the accompanying drawings that form a part hereof, and in which are shown, by way of illustration, specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention. Furthermore, like reference numbers denote like features in the different figures.

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FIG. 1 is a perspective view of one illustrative embodiment of a stabilizer according to the present invention with a waste container 20 depicted in broken lines. The stabilizer 10 preferably surrounds the container 20 so that a high wind from any direction could only move the container 20 a minimal amount horizontally. After the container 20 contacts the stabilizer 10, the weight of the stabilizer 10 preferably prevents any further movement. The height of the stabilizer 10 is preferably low

enough so as not to interfere with, e.g., the pickup arm of a side-load garbage packer body. It may be preferred that the height of the stabilizer 10 be no more than about 50% of the height of the container 20. In another characterization, it may be preferred that the height of the stabilizer 10 be no more than about 24 inches.

5 FIG. 2 is a cutaway view of the stabilizer 10 of FIG. 1, depicting attachment of the legs 2 to the support ring 1. The cutaway leg 2 includes a hollow ballast compartment filled with ballast 8. The ballast 8 may preferably be introduced into leg 2 through an opening 11 that may be sealed by a cap 7. It will be understood that cap 7 may be optional, e.g., the opening 11 may be sealed by the support ring 1 when the 10 leg 2 is attached thereto.

The legs 2 and/or support ring 1 may include one or more hollow ballast compartments that can be filled with any suitable ballast to anchor the stabilizer 10 against, e.g., high winds or other forces. The ballast 8 used to fill the hollow ballast compartment of the support ring 1 and/or one or more of the legs 2 may take a variety 15 of forms. Examples of suitable ballast materials include, but are not limited to, liquids and granular materials. Examples may include, e.g., water, sand, gravel, metal shot, cement, etc., and combinations of two or more thereof. In some embodiments, it may be desirable to stake or otherwise secure the stabilizer 10 in place.

Also seen in FIG. 2 is one technique of attaching a leg 2 to the support ring 1. 20 The depicted method of attachment includes a bolt 5, washer 6, and threaded bore 3 on the leg 2 used to secure the leg 2 in place on the support ring 1. The support ring 1 may preferably include a pipe sleeve 4 through which bolt 5 extends when the leg 2 is attached to the support ring 1. It will be understood that the depicted attachment technique is exemplary in nature only and that any suitable attachment technique or 25 techniques may be used to secure the legs 2 to the support ring 1.

The illustrated embodiment of stabilizer 10 includes three legs 2, although stabilizers with four or more legs may also be used. Three legs may generally provide a stable, tripod type base. In some instances, however, it may be possible to use two legs if the legs extend in a sufficient arc around the support ring 1 to provide the 30 desired degree of stability to the stabilizer 10.

The top surface of the legs 2 may preferably mate with the bottom surface 12 of the support ring 12 in such a way that the legs 2 cannot twist or wobble, thus further stabilizing the unit. By providing a mating connection between the support ring 1 and the legs 2, rotation of the legs 2 relative to the support ring 1 can be prevented even if 5 only a single fastener (e.g., bolt 5) is used to secure the leg 2 to the support ring 1. The depicted nesting profile between the top surface of the legs and the bottom surface 11 of the support ring 1 is only one example of a mating arrangement.

Many types of materials would be suitable for manufacturing the stabilizers 10 of the present invention. These could include most moldable polymeric materials 10 (including, e.g., recycled polymeric materials). If manufactured from polymeric materials that do not need paint, resist chipping, denting or corrosion, the stabilizers 10 may preferably require little or no maintenance.

In another variation, the support ring 1 could be provided in multiple segments rather than a one piece version. This may help in terms of efficient packaging for 15 shipment. In another example, the ring could be provided in segments, with each segment including, e.g., an integral leg. In such an embodiment, two, three, or more segments could be fastened together to form a complete stabilizer apparatus. A three segment apparatus could be assembled using arcuate portions of the support ring that extend over an arc of 120 degrees.

20 The stabilizer apparatus of the present invention may provide a variety of advantages. The preferred modular design may allow for nesting of the support rings, for convenient stacking and palletizing of the components needed to assemble multiple stabilizers for shipment as depicted in, e.g., FIG. 3. For example, the legs 2 may preferably fit within a stacked set of support rings 1 for efficient use of space. Once 25 the parts reach their destination, they can be unpacked. The weight of the stabilizers may be limited because the parts preferably include hollow ballast compartments.

30 The sectional profile of the support ring 1 may also provide advantages such as allowing for stable nesting of several rings placed on a stack with efficient use of vertical space, e.g., as seen in FIG. 3. The beveled top surface 14 of the support ring 1 may also preferably allow for easy insertion of the waste container 20, even if there

was moderate misalignment. Also, the top of the support ring 1 may preferably include a minimal or no flat surface to avoid buildups of, e.g., slush or snow.

The preceding specific embodiments are illustrative of the practice of the  
5 invention. This invention may be suitably practiced in the absence of any element or item not specifically described in this document. Various modifications and alterations of this invention will become apparent to those skilled in the art without departing from the scope of this invention, and it should be understood that this invention is not to be unduly limited to illustrative embodiments set forth herein.

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